



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/057,723	01/25/2002	Hugh M. Wilkinson III	10559-617001/P12856	2784

20985 7590 03/22/2005

FISH & RICHARDSON, PC
12390 EL CAMINO REAL
SAN DIEGO, CA 92130-2081

EXAMINER

COLEMAN, ERIC

ART UNIT	PAPER NUMBER
----------	--------------

2183

DATE MAILED: 03/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/057,723

Applicant(s)

WILKINSON ET AL.

Examiner

Eric Coleman

Art Unit

2183

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 11, 12, 19-22, 26-31, 33, 34, 36 and 37 is/are rejected.
- 7) ☒ Claim(s) 9, 10, 13-18, 23-25, 32, 35 and 38 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-8,11,12,19-21,26-31,33,34,36, are rejected under 35 U.S.C. 102(b) as being anticipated by Dowling (patent No. 6,170,051).

3. Dowling taught the invention as claimed including a data processing ("DP") system comprising; (As per the independent claims), assigning tasks for packet processing to a plurality of programming engines (e.g., see figs. 2,3), establishing programming stages corresponding to the plurality of programming engines (e.g., see col. 6, lines 37-62); and establishing a plurality of pipelines between the programming stages (e.g., see figs. 2,3, and col. 11, lines 16-64), where an embodiment is taught with as many as sixteen functional units and four sub-processors).

4. As per claims 2,3,27,28 Dowling taught establishing contexts using software for assigned tasks on the plurality of programming engines (e.g., see col. 6, lines 16-62 and col. 9, line 47- col. 10, line 9). As per claims 11,12 Dowling taught the contexts were executed simultaneously in an order (e.g., see col. 12, lines 3-33).

5. As to claims 4,14,21,29,36 Dowling taught the software controlled cache was a content addressable memory (e.g., see col. 11, lines 21-42).

6. As per claims 5,6,20,29,31,34 Dowling taught forming at least one next neighbor register in each of the plurality of programming engines and transferring data from one next neighbor register residing in one of the plurality of programming engines to a subsequent next neighbor register residing in an adjacent engine form the one programming engine (e.g., see col. 10, lines 10-55).

7. As per claims 7,8, Dowling taught a programming engine maintains the currently operating stage of the pipeline and the adjacent programming engine maintains a subsequent programming stage of the plurality of pipelines (e.g., see col. 9,line 47-col. 10, line 36).

Claim Rejections - 35 USC § 103

8. Claims 22,37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dowling (patent No. 6,170,051).

9. Dowling taught the invention substantially as claimed including a data processing ("DP") system comprising; assigning tasks for packet processing to a plurality of programming engines (e.g., see figs. 2,3), establishing programming stages corresponding to the plurality of programming engines (e.g., see col. 6, lines 37-62); and establishing a plurality of pipelines between the programming stages (e.g., see figs. 2,3, and col. 11, lines 16-64), where an embodiment is taught with as many as sixteen functional units and four sub-processors).

10. As per claims 2,3,27,28 Dowling taught establishing contexts using software for assigned tasks on the plurality of programming engines (e.g., see col. 6, lines 16-62 and

Art Unit: 2183

col. 9, line 47-col. 10, line 9). As per claims 11,12 Dowling taught the contexts were executed simultaneously in an order (e.g., see col. 12, lines 3-33).

11. As to claims 4,14,21,29,36 Dowling taught the software controlled cache was a content addressable memory (e.g., see col. 11, lines 21-42).

12. As per claims 5,6,20,29,31,34 Dowling taught forming at least one next neighbor register in each of the plurality of programming engines and transferring data from one next neighbor register residing in one of the plurality of programming engines to a subsequent next neighbor register residing in an adjacent engine from the one programming engine (e.g., see col. 10, lines 10-55).

13. As per claims 7,8, Dowling taught a programming engine maintains the currently operating stage of the pipeline and the adjacent programming engine maintains a subsequent programming stage of the plurality of pipelines (e.g., see col. 9,line 47-col. 10, line 36).

14. As per claim 22,37, Dowling did not expressly detail a plurality of entries for monitoring the least recently used variables. However the use of a least recently used algorithm and entries for monitoring least recently used variable in a cache was well known in the art at the time of the claimed invention. Therefore one of ordinary skill would have been motivated to used a least recently used algorithm with entries for monitoring the least recently used variables at least to ensure the variables that are most likely to be used in processing would been stored in the cache in the Dowling system.

Allowable Subject Matter

15. Claims 9,10,13-18,23-25,32,35,38 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

DeHon (patent No. 6,266,760) disclosed a intermediate grain reconfigurable processing device (e.g., see abstract).

Motomura (patent No. 5,742,822) disclosed a multithreaded processor which dynamically discriminates a parallel execution and a sequential execution of threads (e.g., see abstract).

Modelski (patent No. 6,665,755) disclosed an external memory engine selectable pipeline architecture (e.g., see abstract).

Abbott (patent No. 6,006,321) disclosed a programmable logic data path that may be used in a field programmable device (e.g., see abstract).

Baumert (patent No. 6,067,300) disclosed a system for optimizing the transfer of data packets between local area networks (e.g., see abstract).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Coleman whose telephone number is (571) 272-4163. The examiner can normally be reached on Monday-Thursday.

Art Unit: 2183

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Chan can be reached on (571) 272-4162. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

EC



ERIC COLEMAN
PRIMARY EXAMINER